Internal Employer Policies and Incentives Encouraging Workplace Charging

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For questions or comments on the content presented here, please contact Jasna Tomic, CALSTART Research Director at jtomic@calstart.org. For questions regarding CALSTART's role in accelerating the transition toward cleaner, more efficient vehicle technologies, please contact the report authors or visit our website at www.calstart.org.

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CALSTART is a non-profit organization that works with the public and private sectors to develop advanced transportation technologies and foster companies that will help clean the air, lessen our dependence on foreign oil, reduce global warming, and create jobs.

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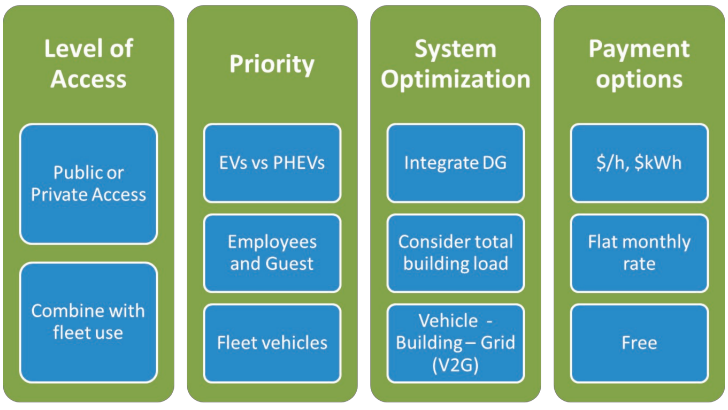
Introduction

Workplace plug-in electric vehicle (PEV) charging is widely considered the second most important target for PEV infrastructure, after residential charging. It is being promoted ahead of public charging infrastructure at the federal level by the Department of Energy (DOE) through the Workplace Charging Challenge Program as well as individually at the states' level. There are clear benefits for employees, including building range confidence for those that already drive PEVs while expanding the pool of potential PEV drivers to those with longer commutes or no home charging. Employer benefits range from using workplace charging as a tool for workforce recruitment and retention, "green" corporate branding, enhanced employee productivity, regulatory compliance, and even some cost savings in converting fleet vehicles to plug-in electric variants. All these effects contribute to making the case for workplace charging, which is essential to further spurring adoption of PEVs.

CALSTART published a Best Practices for Workplace Charging document in 2013 detailing how to install and implement PEV infrastructure, cost recovery and taxes, and other policies supportive of PEVs[1]. One of the unifying best practices that many employers with successful installations hold in common is significant internal support for their projects.



Goals when establishing workplace charging internal procedures. (Source: CALSTART Best Practices for Workplace Charging)

[1] CALSTART: "Best Practices for Workplace Charging"

As shown later in this document, employers approach establishment of internal procedures slightly differently, though all recognize the best practices guideline visually depicted in the figure below left, requiring focus on level of access, usage priority, system optimization, and payment options.

Figure 1: Chevy Volt plugged into solar-powered Electric Vehicle Supply Equipment. (Source: CALSTART)

The purpose of this document is to chronicle and categorize internal employer policies that either directly or indirectly work to incentivize PEV adoption, in addition to providing charging stations. Many industry contacts were identified as a result of the three Workplace Charging webinars held by CALSTART and partners in May and July 2013 and in January 2015. Of the 28 attendees to the May 2013 webinar and 20 attendees to the July 2013 webinar, roughly one third were employers, some of whom participated in our subsequent in-depth interviews for this document. The January 2015 webinar was heavily marketed to a broad audience and ultimately attained 113 attendees, again with approximately one third employers.

The incentives described here, both monetary and non-monetary, were collected through research and interviews by CALSTART staff with companies that have workplace charging. We hope this information provides useful examples for other companies interested in promoting PEVs.

Policy Support for PEV Charging

There are currently federal, state, and local incentives for EV adoption and charging infrastructure development. The California Energy Commission (CEC) has distributed $38.3 million in Electric Vehicle Supply Equipment (EVSE) infrastructure alone, while the California Air Resources Board (CARB) has funded the Commercial Vehicle Rebate Project (CVRP) for PEVs with $49 million in vehicle vouchers.

In Northern California the Bay Area Air Quality Management District (BAAQMD) funds workplace charging efforts through the Transportation Fund for Clean Air (TFCA). Additionally, the BAAQMD funds the Bay Area Corridor Charging Expansion Project (along with the CEC) will ultimately provide 10 DC Fast and 12 Level 2 chargers at six locations in the Bay Area.

DC Fast charger crated in partnership between Chargepoint, BMW, and Volkswagen.
(Source: digitaltrends.com)

In Southern California there are separate regulations from the South Coast Air Quality Management District (SCAQMD) which compels employers to reduce the greenhouse gas impact of their employees and facilities.

Rule 2202 requires employers with 500 or more employees to create plans and enact measures that reduce emissions from their employee commuting habits. Establishing workplace PEV charging is one such action which can satisfy Rule 2202 stipulations. The SCAQMD, also through a partnership with the CEC, will fund installation of 26 networked DC fast chargers by January 2016.

An alternative form of PEV policy support involves Leadership in Energy and Environmental Design (LEED) efficient building certification. PEV charging station installations can count as credits toward LEED certification for structures, incentivizing developers to incorporate EVSE into their designs.

Early Adopter Employers

There are many employers within the state of California and nationwide that have taken strong initiative to install workplace charging for their employees. There were 130 companies that signed the DOE Workplace Charging Challenge pledge, with 13 additions in 2014 alone. In signing, these employers pledged a commitment to provide charging access at their place of business, to help achieve the DOE national goal of a "tenfold increase in the number of U.S. employers offering workplace charging in the next five years."

Figure 2: Map of Employers Providing Workplace Charging in the U.S. (Source: DOE Workplace Charging Challenge)

Employer PEV Policies

A review of the California Plug-In Electric Vehicle Collaborative publication, *Amping Up California Workplaces*, provides a handful of different company policies relating to PEV incentives and workplace charging. Many case studies have similar motivation stories, in which employees and senior management formally requested charging infrastructure be installed at their site.

16 all-EV vehicle models currently available in select states in the U.S. (Source: CALSTART Electric Vehicle Workplace Charging Webinar on January 27, 2015)

At this point the company would review the different options and institute some version of a pilot program that allowed for review and future expansion. Other companies took it upon themselves to provide charging for their employees, many of whom were already using PEVs or had intimated that they were interested in purchase or lease plans for one of the 16 all-EV models currently available.

In general, early adopter companies tend to be proactive in responding to employee requests for workplace charging and operational concerns that may arise from EVSE installations. Some employers put the power in their employees hands by creating self-policing EV forums at their workplaces to help manage operational issues.

A total of eight employers were interviewed for this compendium, their policies are categorized into monetary and non-monetary policies. Monetary policies involve direct transfer of funds between employee and employer (or vice versa) and non-monetary policies benefit or indirectly lower the expense of using PEVs. The monetary and non-monetary policies identified in our employer interviews are listed below and explored in more detail in the following pages.

Monetary Policies

There are three types of monetary incentives identified in the research process that employers have used to spur adoption of PEVs:

1. Assistance for employees acquiring PEVs either through lease or purchasing
2. Fee-based PEV charging access
3. Fixed daily incentives for PEV usage

Non-Monetary Policies

The non-monetary policies identified from our employer interviews all maintain no direct transfer of funds between employer and employee, they are:

1. Free PEV charging to employees
2. Preferential on-site parking for PEV users
3. PEV car-sharing services to all employees

EVSE and Fiat 500 plugged in at the CALSTART parking lot. (Source: CALSTART)

Monetary Policy Number 1:

Vehicle Purchase and Lease Assistance

A handful of employers are able to offer significant discounts in PEV financing to their employees through corporate agreements with car manufacturers. Leases range in coverage, but are generally highly competitive or favorable to standard leasing through a dealership. Some companies conduct vehicle specification overviews and subsequent consultations with employees to determine the appropriate vehicle for individual lease. These consultations review the average daily commute for the employee as well as their garaging and charging capabilities at their place of residence. Leases can also cover insurance and maintenance costs, making them even more attractive to employees.

If not directly called-out as PEV leasing programs, an employer's discounts on car purchases or lease financing may include PEVs, as is the case for an employer conducting a PEV lease pilot program in Europe as part of its standard employee lease plans.

In addition to leases negotiated with car manufacturers, one employer provides a monthly subsidy toward HOV-qualifying PEVs. In this case the employer negotiated a special lease with the car manufacturer that would enable their monthly employee subsidy to fully cover the cost of leasing the specific PEV. The aim of this program is to increase employee morale and productivity by directly reducing time spent commuting. Similarly, another employer offers a one-time subsidy toward PEV purchase and has negotiated a deal with an EVSE network provider to cover any annual membership fees that may be levied. Memberships may be required for access to some charging stations, and can enable lower-cost charging at others. This can be particularly attractive for those without residential charging capabilities because they rely solely on the workplace and commercial station network.

Figure 4: Nissan Leaf plugged in and charging. (Source: Nissan)

Monetary Policy Number 2:

Fee-Based Workplace Charging Infrastructure

Many employers require some kind of fee for PEV charging usage specifically to negate the "no free gas" complaints heard by site managers from conventional vehicle users. Usage fees can be levied per kWh, hour, or session, and parking in these spots may also be limited only to those who need the charge. One site managed a mixture of these options, offering faculty and staff charging fees per kWh and all other visitors charging fees per hour, incentivizing the former slightly more than the latter. The kWh basis levels the playing field by only charging users for the energy they use, rather than penalizing those with a lower-power vehicle charger that takes longer and is thus more expensive to use. The observed range in fees was $1-$2.50/hour or $.28 to $.35/kWh. Each interviewee used internal company calculation methods to determine these numbers, though all had similar motivations of charging fees in order to cover costs associated with operating and maintaining the EVSEs.

At sites that instituted fees, Level 2 charging was usually limited to four to five hours of continual charging, though employers with only a few regular PEV users offered unlimited fee-based charging. Sometimes higher fees kick in to force users off of the charging infrastructure, signage on the parking spot or electronic notification may be used to alert users to the upcoming fee shifting. Contrary to this policy, multiple employers described internal, self-policing, PEV forums which instruct users on how to track the charge status of their vehicle and maintain a culture of unplugging or moving their vehicle when fully charged.

Figure 5: ChargePoint EVSE and PEV parking signage. (Source: ChargePoint)

Another example is a strict employee benefit, prohibiting guests from charging and requiring all employees to register their PEVs with the company and sign a liability waiver in order to use the charging infrastructure. In this example, fees are charged on a per-kWh basis with an additional per-session usage fee. A utility company made charging available to their employee and fleet vehicles, wherein employees pay different rates for Level 1 and 2 EVSEs on a per-kWh basis depending on both season and Time-of-Use (TOU), with one flat fee per session for DC fast charger usage. A separate employer example from Ohio estimated the cost of energy with a Level 2 EVSE to fully charge a Chevrolet Volt and Nissan Leaf/BMW i3 at $1.11 and $1.80, respectively.

Monetary Policy Number 3:

Fixed Daily Incentive

One employer monetarily rewards employees for every day that they commute to the site with their PEV. Separate from a mileage reimbursement program, this single payment every day that an employee drives their PEV to work acts as a usage incentive to spur PEV adoption. With an average work calendar year consisting of 250 days, the maximum annual value of the incentive at this particular employer is $250.

Figure 6: Ford Fusion Energi charging at EVSE. (Source: Greencarreports.com)

Non-Monetary Policy Number 1:

Free Workplace Charging Infrastructure

We encountered many employers that offer free workplace charging to anyone who parks at their site, and others that allow free charging only for employees rather than visitors or the public, who may pay at varying rates on a per hour basis. This distinction between visitor and employee reinforces the idea that free workplace charging is seen by most employers as the primary incentive used to spur PEV adoption. As mentioned in the CALSTART Best Practices Guide, it is important for employers to prioritize charging level of access among fleet, employee, and public vehicles. An employer in Ohio maintains a policy to prioritize guest over employee charging to enhance their green image and to altruistically increase local charging opportunities.

Conversely, a beverage distribution fleet only grants employee access to the EVSE when fleet vehicles are not using it. This dual-use charging station allows free charging from the installed infrastructure to employees who need it during the day.

To ease accessibility, charging stations were placed in the employee parking lot rather than in the conventional fleet vehicle parking locations. This employer referenced the increased expense associated with installing EV charging infrastructure and that by siting it in the employee lot they were able to offer an employee incentive while retaining full functionality at an operational level.

There was another distinction provided between Level 1 and Level 2 users for one employer who indicated their goal to expand Level 1 plug access so that these users don't have to unplug and move their cars. Level 1 chargers may take 8 to 10 hours to charge a fully-depleted vehicle, but installation costs may be one tenth that of a Level 2 charger. Level 2 users are expected to unplug and move their cars when fully charged, usually only 3 to 5 hours or a half-day of charging. One municipality created a policy for PEV drivers that allows free parking and monthly charging at a variety of their downtown garages, a particularly attractive and often economical incentive for users.

Non-Monetary Policy Number 2:

Preferential Parking

One employer has created a unique preferential parking benefit for PEV users by providing reduced garaging fees and priority waitlist positions for garage access to one of their highly-competitive urban parking structures. This prioritizes PEV users both in their ability to get a parking spot in the garage and in the location of the spot itself, which is often highly coveted. Some employers actively combat the natural occurrence of PEV parking situated in preferential spots near buildings by purposely moving charging infrastructure to central locations in parking lots and garages, thus providing a more egalitarian parking experience for their employees. Policies also exist to help employers manage their PEV parking locations, such as placards given out at garage entrances for free, four-hour charging, after which employees must move their vehicles. Similar parking protocols have sprung up on internal company forums that allow users to communicate with each other regarding open spots and generate requests for others to move their cars.

Figure 7: Assorted EV-only charging signage displayed in parking lots and garages. (Sources: teslamotorsclub.com, bcsiteservice.com, lilypadev.com)

Non-Monetary Policy Number 3:

PEV Car-Sharing

One interviewed employer maintains an all-PEV car-sharing fleet, which domiciles and charges on its campus and is available free of charge to all its employees. This fleet is intended to be at the leading edge of vehicle technology and emissions reduction, effectively encouraging employees to interact with PEVs on a regular basis, thus increasing the likelihood of their increased adoption.

Figure 8: All-PEV car sharing fleet. (Source: sdcleanfuels.org)

Level of access and priority decisions must be made for car sharing fleets as well. When fleet vehicles are at a premium, the interviewed employer gives priority to those who commute using alternative means of transportation, including bicycling, walking, public transit, and ride-sharing. The car-sharing fleet reduces employer carbon footprint by increasing zero-emission miles that employees might normally cover in conventional vehicles, and assuages the common concern behind commuting via alternative transportation of not having access to a vehicle during the work day.

Additional Resources

Many of our background incentives and employer policy research came from the following sources. Please click on the PDF image to download each report.

- CALSTART: "Best Practices for Workplace Charging" 
- California Plug-In Electric Vehicle Collaborative: "Amping Up California Workplaces: 20 Case Studies On Plug-In Electric Vehicle Charging at Work" 
- Center for Climate and Energy Solutions: "A Guide to the Lessons Learned from the Clean Cities Community Electric Vehicle Readiness Projects" 

Additionally, the following regions host information on individual readiness plans for PEVs, which are located at the linked sites.

- California
- Colorado
- Florida
- Kansas City
- Maui
- Michigan
- New York City
- North Carolina
- Northeast Regional
- Ohio
- Oregon
- Richmond
- Southeast Regional
- Southeastern Pennsylvania
- Texas River Cities

Further information can also be found at www.evworkplace.org and the DOE Office of Energy Efficiency and Renewable Energy.